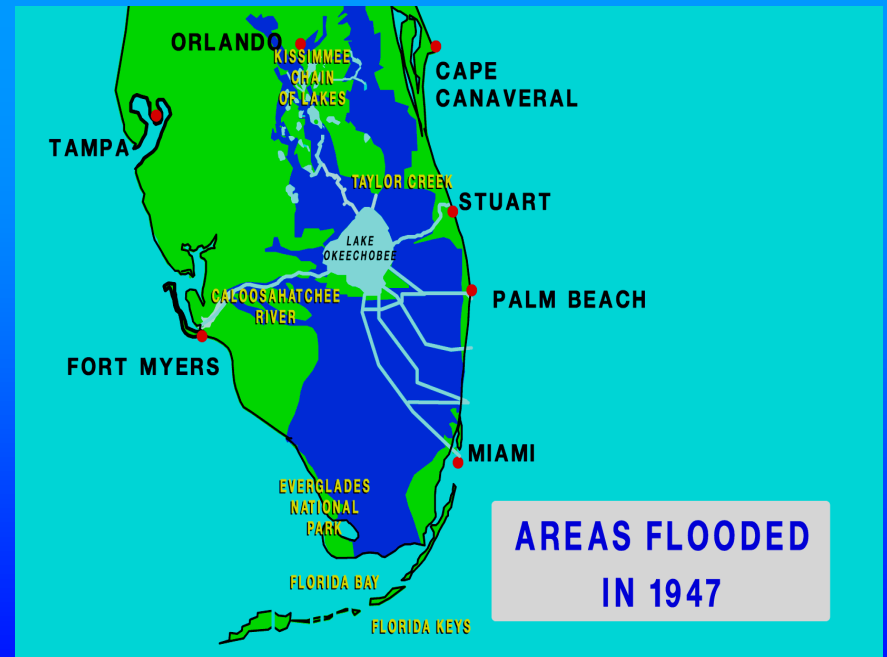


An aerial photograph of the Everglades wetlands. The foreground shows a large body of water with a narrow, straight canal or dike running through it. To the left of the canal, there is a developed area with houses, roads, and a baseball field. To the right, there is a large, flat, green area of wetlands with some small islands and a sandy beach along the coast. In the background, a city skyline is visible under a cloudy sky.

Everglades Overview by Steve Traxler SAJ

HURRICANE





Cries for relief were heard... the federal government built the Central and Southern Florida Flood Control Project



The once rich, dark
Everglades muck
was consumed by
fire



MID 1800s

GRAND VISIONS



*EXTENSIVE AGRICULTURAL
DEVELOPMENT OF MUCK LANDS*

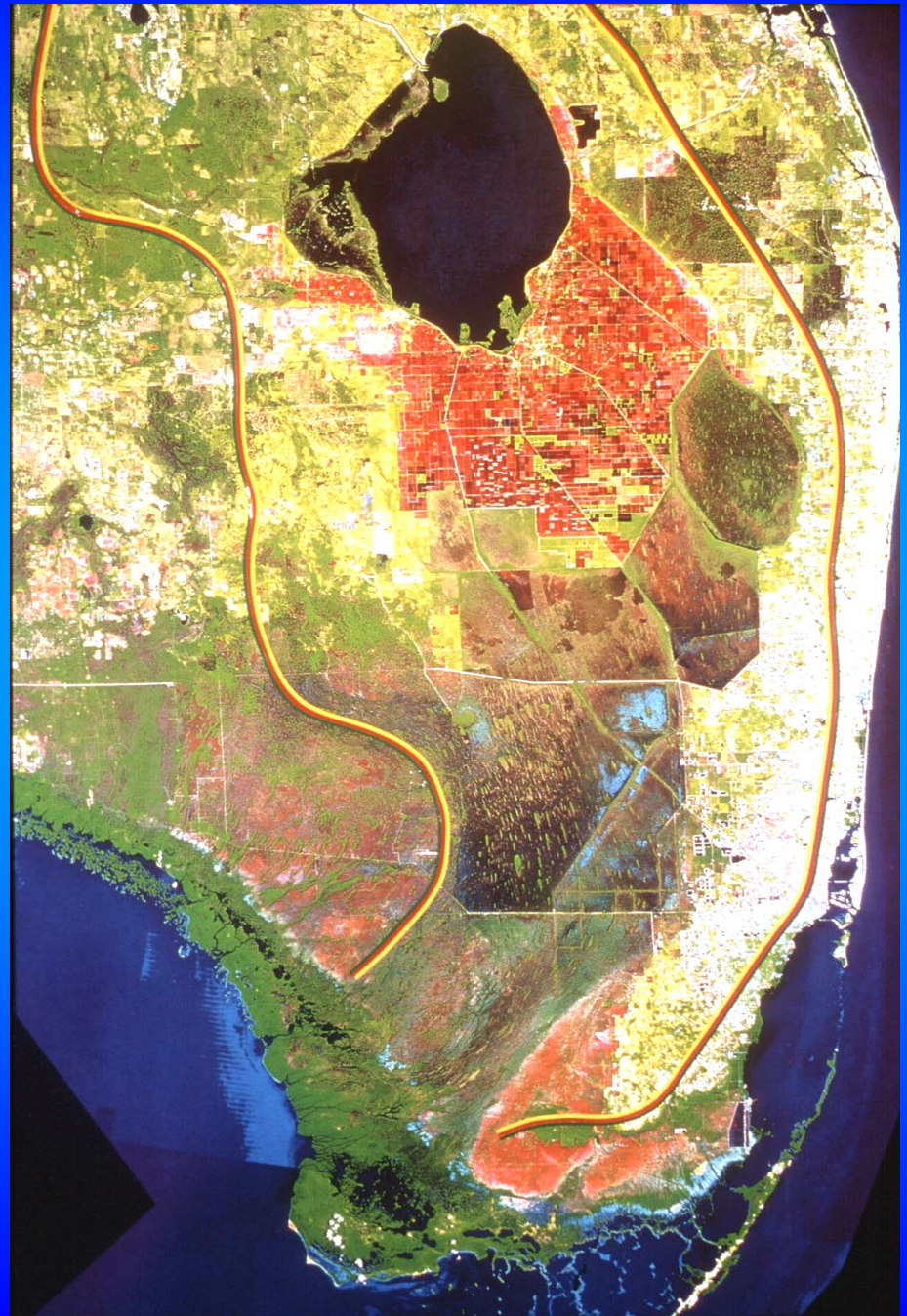






An Ecosystem in Trouble....

- Too much/too little water for the Everglades/south Florida ecosystem
- Massive reductions in wading bird populations
- Degradation of water quality
- Repetitive water shortages and salt water intrusion
- Declining estuary health
- 1.7 billion gallons of water a day wasted to tide







Getting The Water Right

Quantity

Quality

Q

Q

T

D

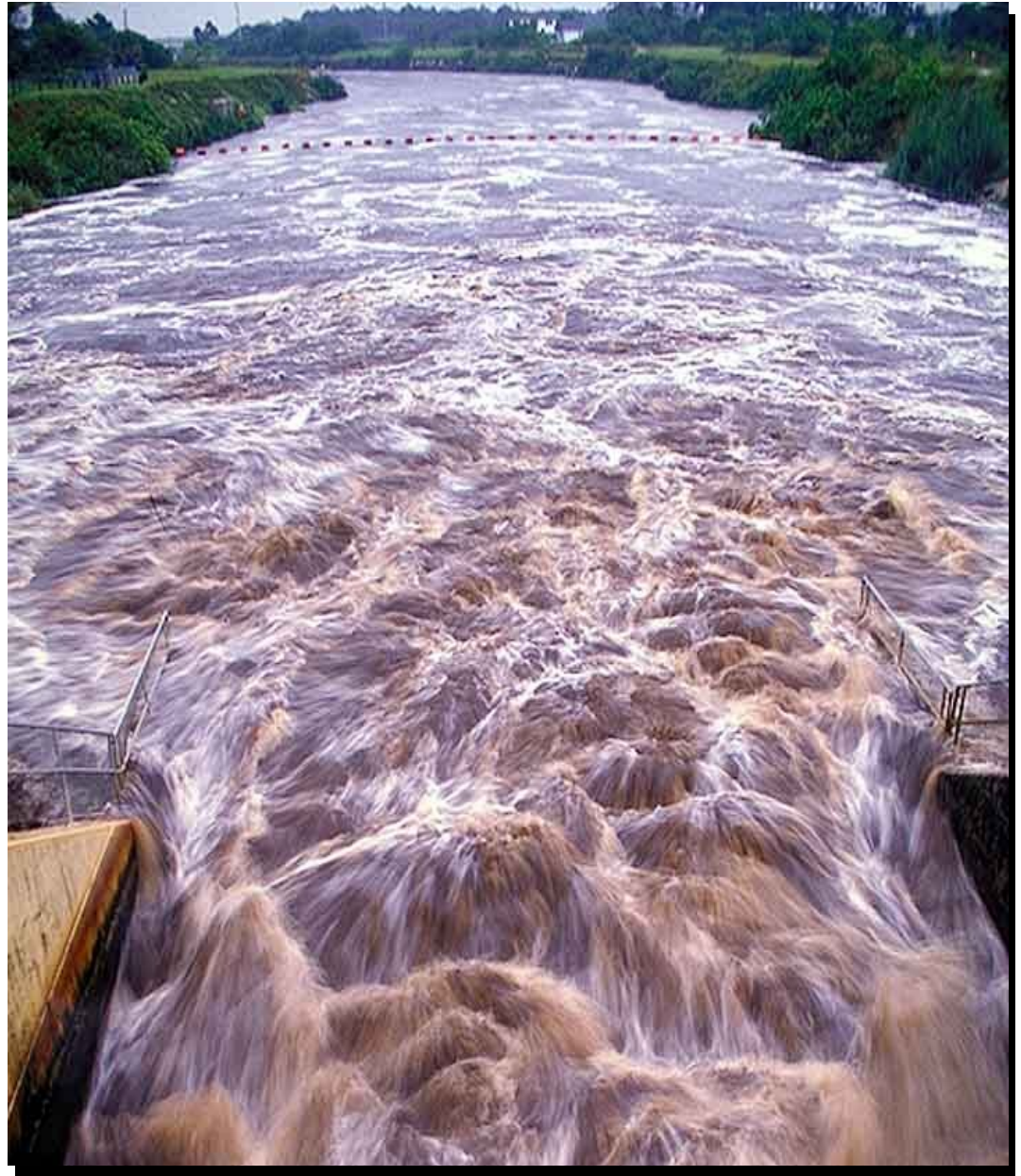
Timing

Distribution



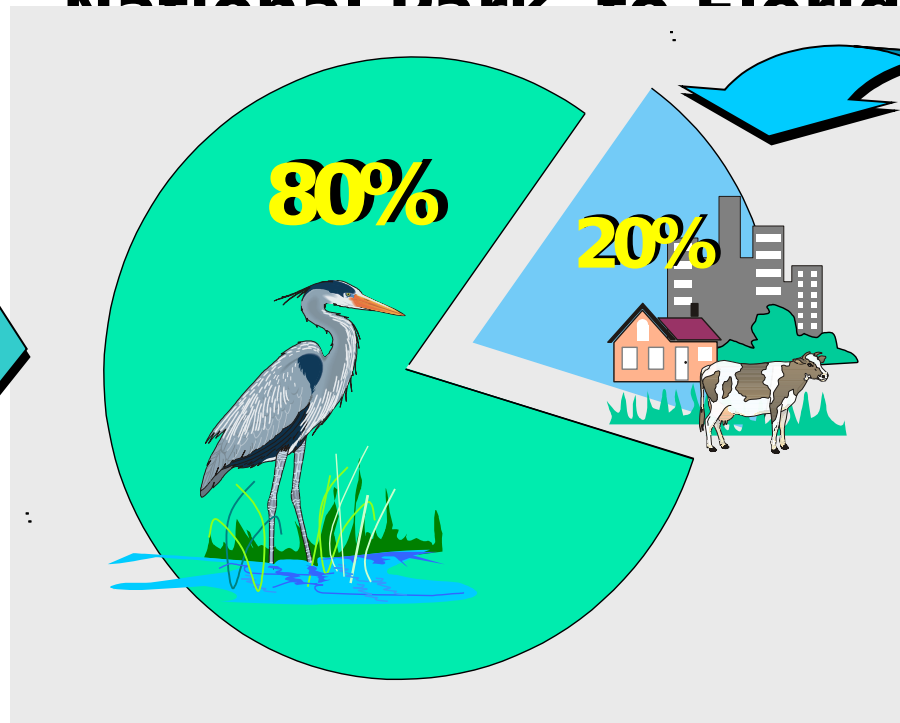


Freshwater
that
now flows
out to sea
will be
captured
and
utilized



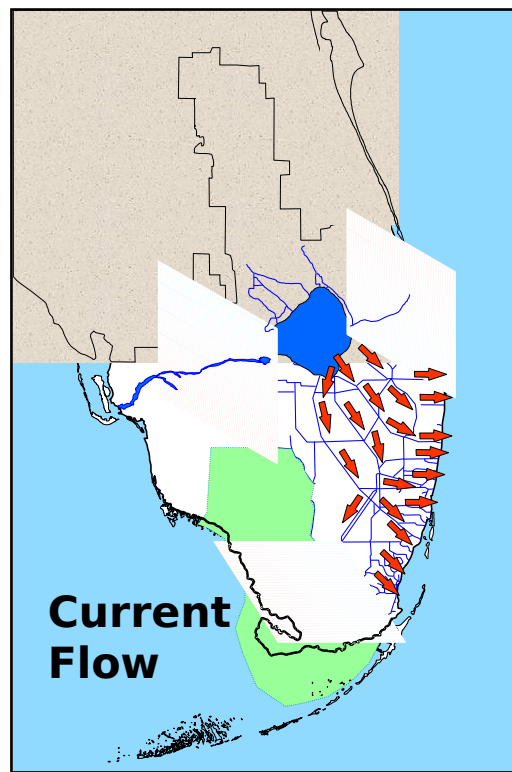
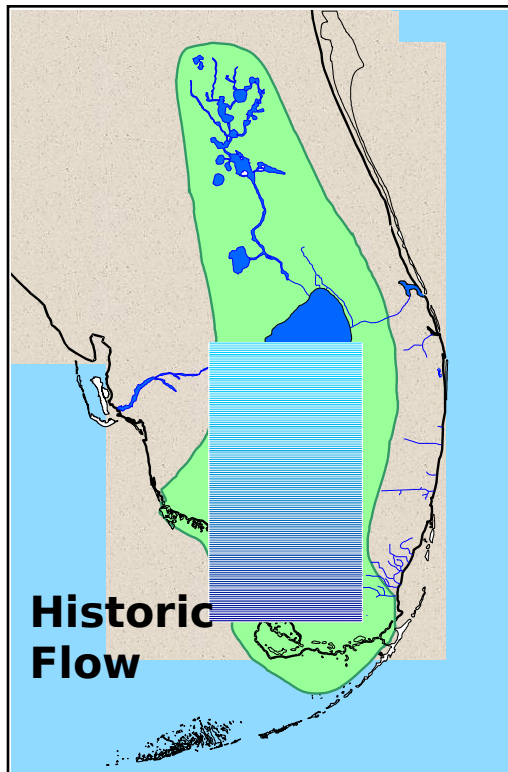
“New” Water Distribution

80% - environmental restoration, reviving the ecosystem from the Kissimmee River, through Lake Okeechobee, through Everglades National Park to Florida Bay and



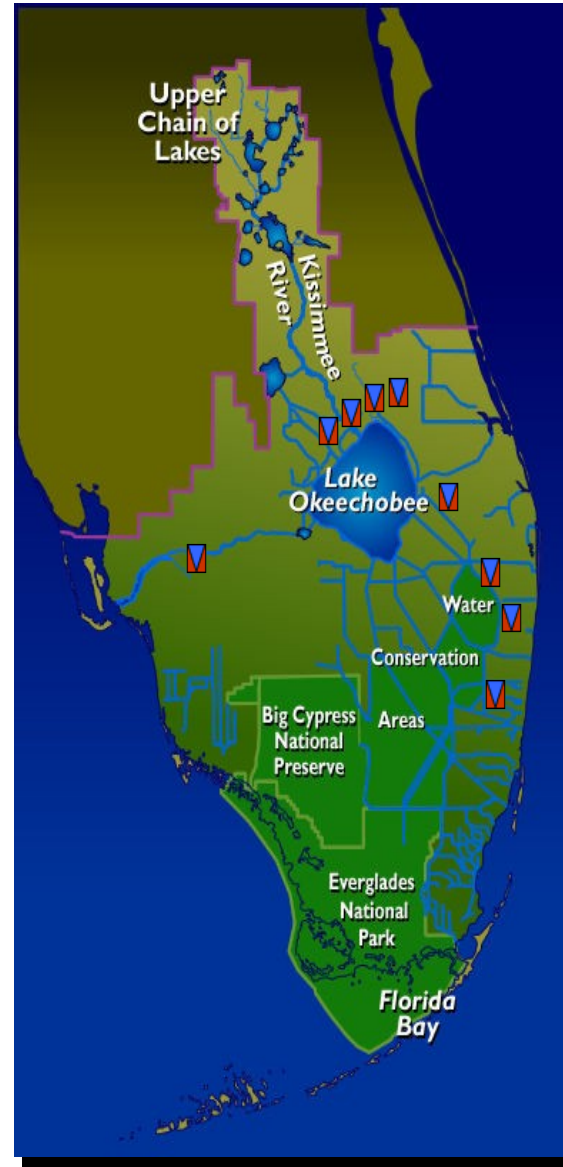
20% - enhanced water supplies for cities and farmers

WATER FLOW PATTERNS



Fresh water will be stored in the underground aquifer

Aquifer Storage and Recovery



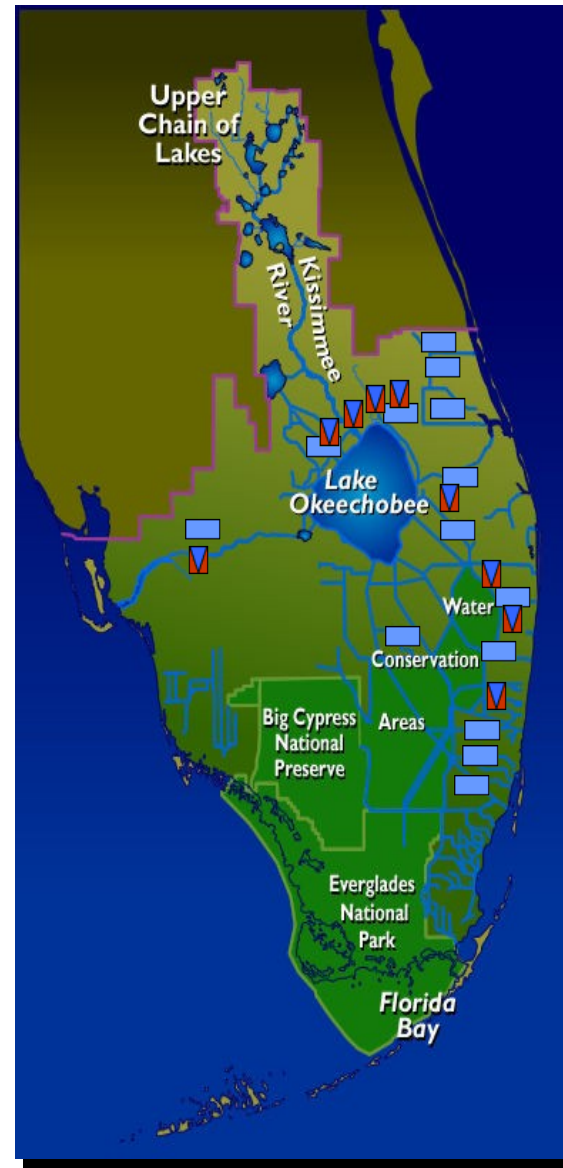
180,000 acres

will be able to
store more
water

Aquifer Storage and Recovery



Surface Water Storage Reservoir



35,600 acres of

manmade
wetlands will
treat runoff

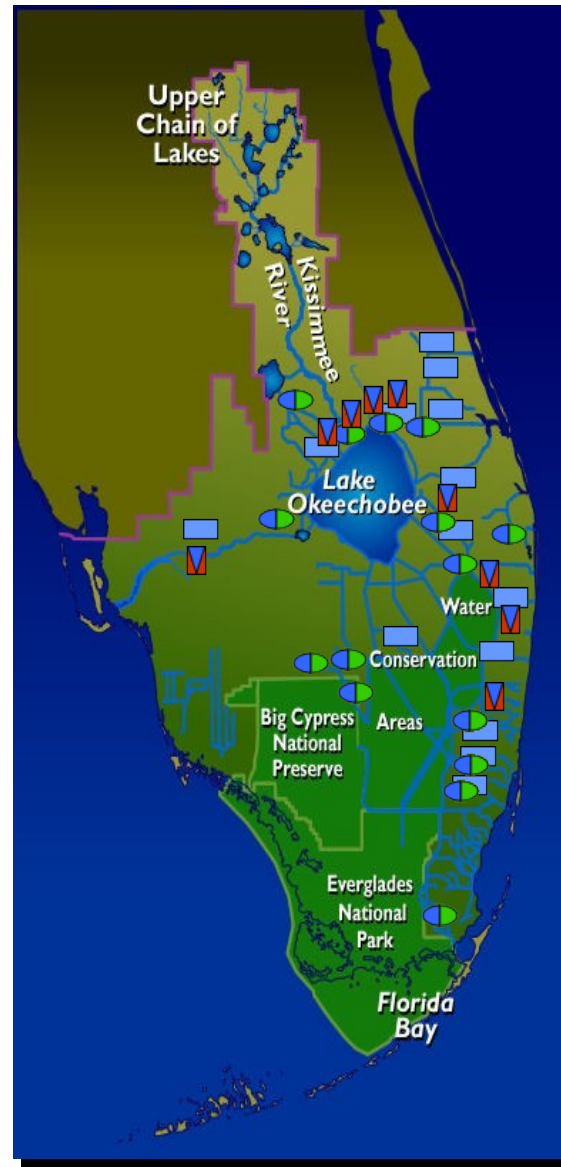
Amphibian Storage and Recovery



Surface Water Storage Reservoir



Stormwater Treatment Areas



Barriers will slow water loss to the eastern coast

Aquifer Storage and Recovery



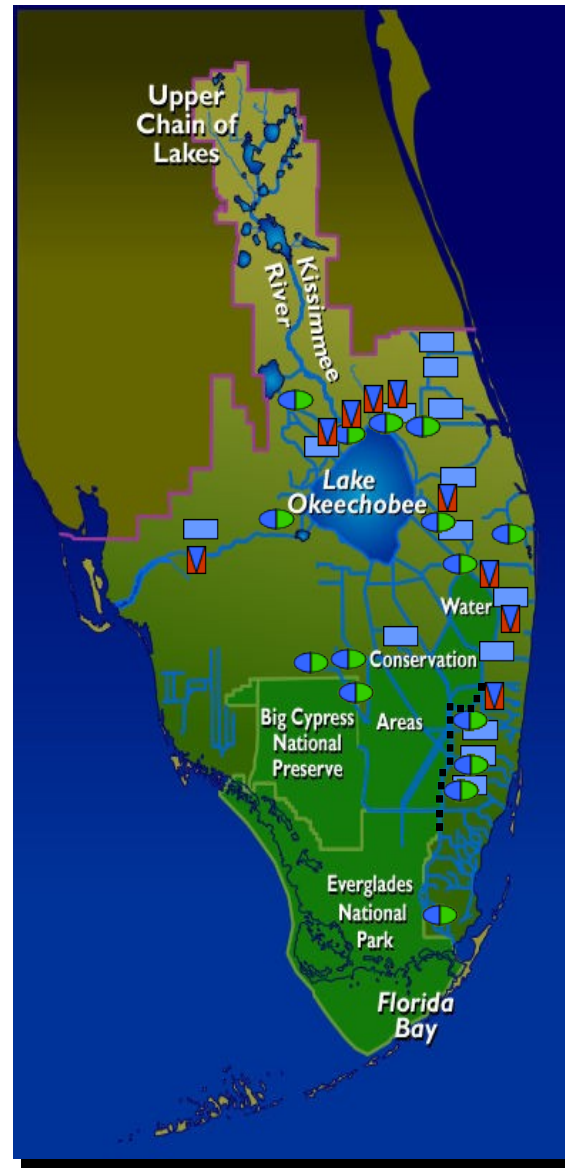
Surface Water Storage Reservoir



Stormwater Treatment Areas



Seepage Management



Selected canals

and levees will
be removed

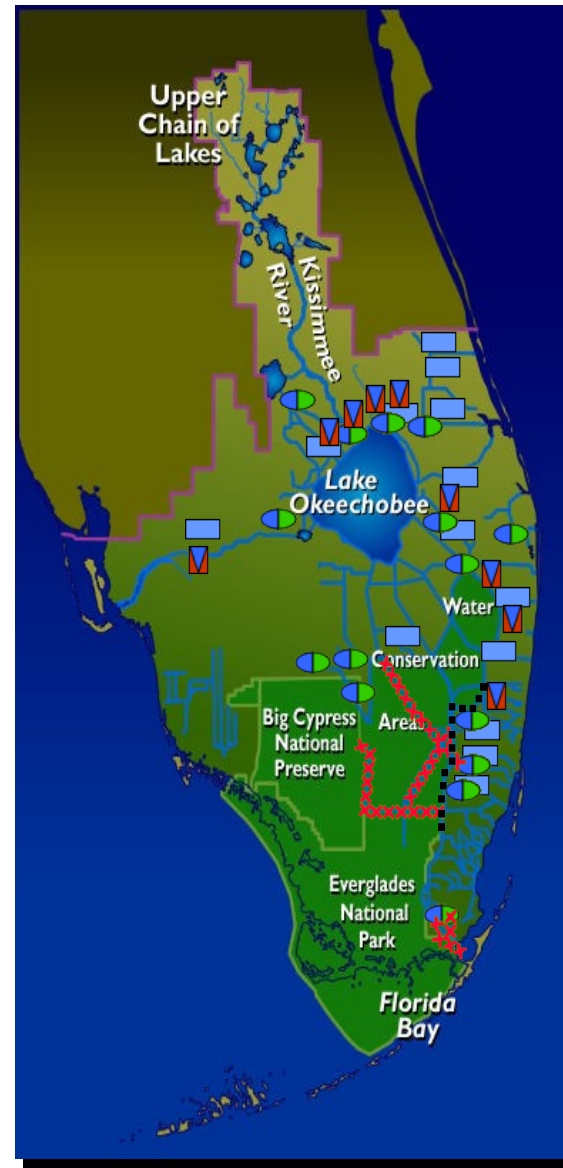
Agri-Storage and Recovery

Surface Water Storage Reservoir

Stormwater Treatment Areas

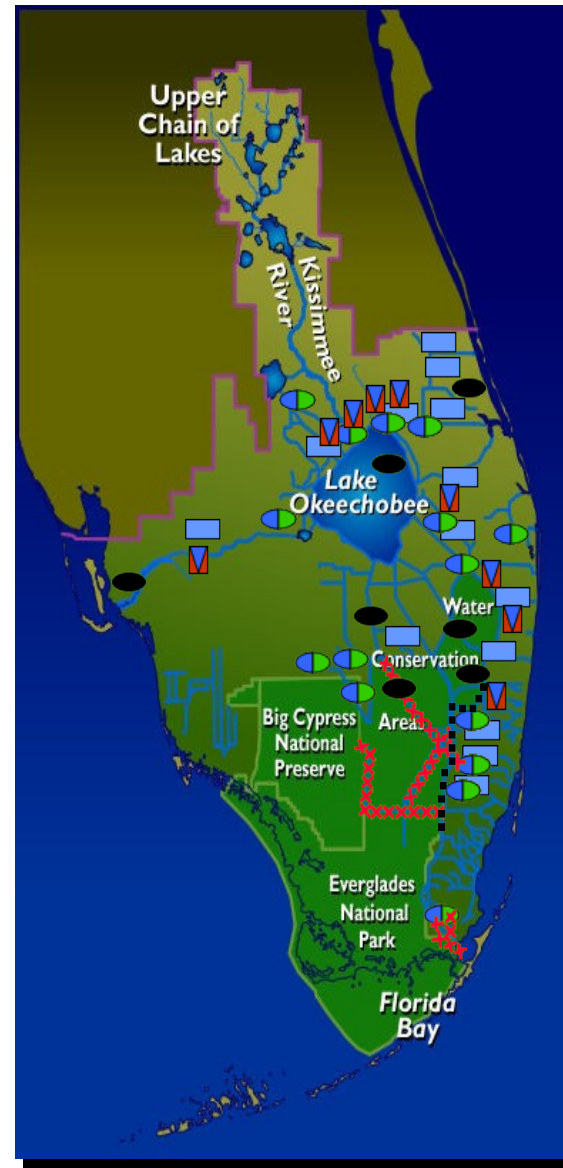
Seepage Management

Removing Barriers to Sheetflow



Operational changes will be made to water delivery

- Agri Storage and Recovery 
- Surface Water Storage Reservoir 
- Stormwater Treatment Areas 
- Seepage Management 
- Removing Barriers to Sheetflow 
- Operational Changes 



Two wastewater reuse plants are proposed

Aquifer Storage and Recovery



Stormwater Treatment Areas



Surface Water Storage Reservoir



Seepage Management



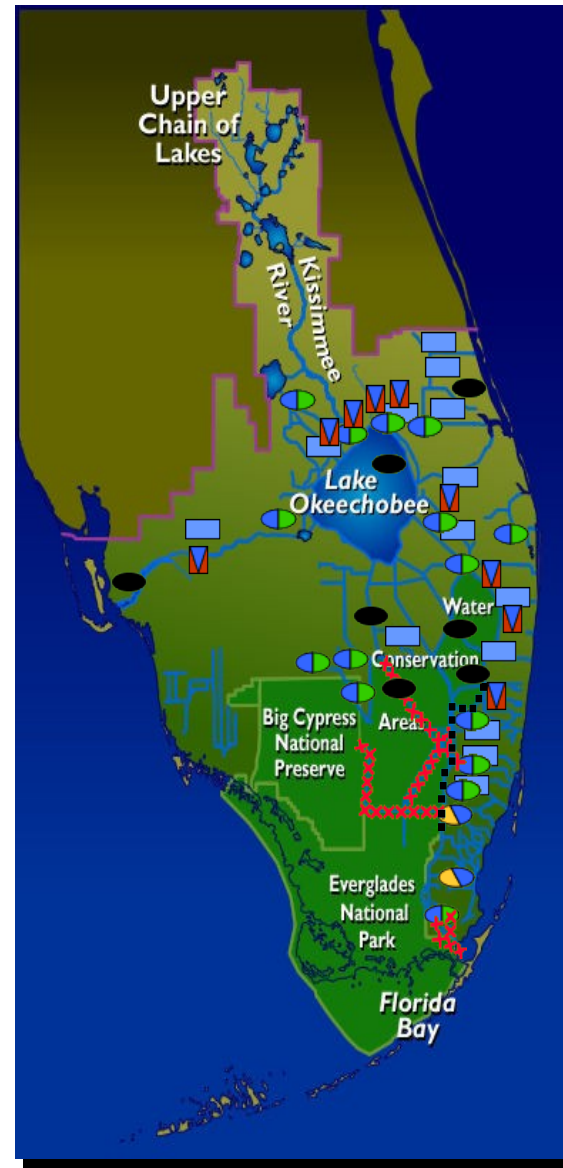
Removing Barriers to Sheetflow



Operational Changes



Reuse Wastewater



TEAM PARTICIPANTS

- U.S. Army Corps of Engineers
- South Florida Water Management District
- US Fish and Wildlife Service
- Everglades National Park
- National Marine Fisheries Service
- U.S. Environmental Protection Agency
- Natural Resources Conservation Service
- Miccosukee and Seminole Tribes
- Florida Department of Agriculture and Consumer Services
- Florida Department of Environmental Protection
- Florida Fish and Wildlife Conservation Commission
- Local Government Agencies

Adaptive Assessment



- Integral part of CERP implementation program
- Systematic process to address uncertainties associated with ecological responses
 - Monitoring program
 - Assessment of ecological responses
 - Determine needed changes in the Plan

WHAT IS RECOVER?

- RECOVER - Restoration
Coordination and Verification
- Role - Organize and apply
scientific and technical
information to support the
objectives of CERP

RECOVER OBJECTIVES

- Evaluate and assess Comprehensive Plan performance
- Recommend refinements and improvements in design and operations of CERP components
- Review effects of other restoration projects on Comprehensive Plan performance
- Ensure that system-wide focus is maintained
- Develop consensus among agencies regarding scientific and technical aspects of the restoration plan

**Comprehensive
Everglades Restoration
Plan**

```
graph TD; A[Comprehensive Everglades Restoration Plan] --> B[RECOVER Leadership Group]; B --> C[Adaptive Assessment Team]; B --> D[Regional Evaluation Team]; B --> E[Comprehensive Plan Refinement Team]; B --> F[Model Development and Refinement Team]; B --> G[Operations Planning Team]; B --> H[Water Quality Team];
```

**RECOVER
Leadership
Group**

**Adaptive
Assessment
Team**

**Regional
Evaluation
Team**

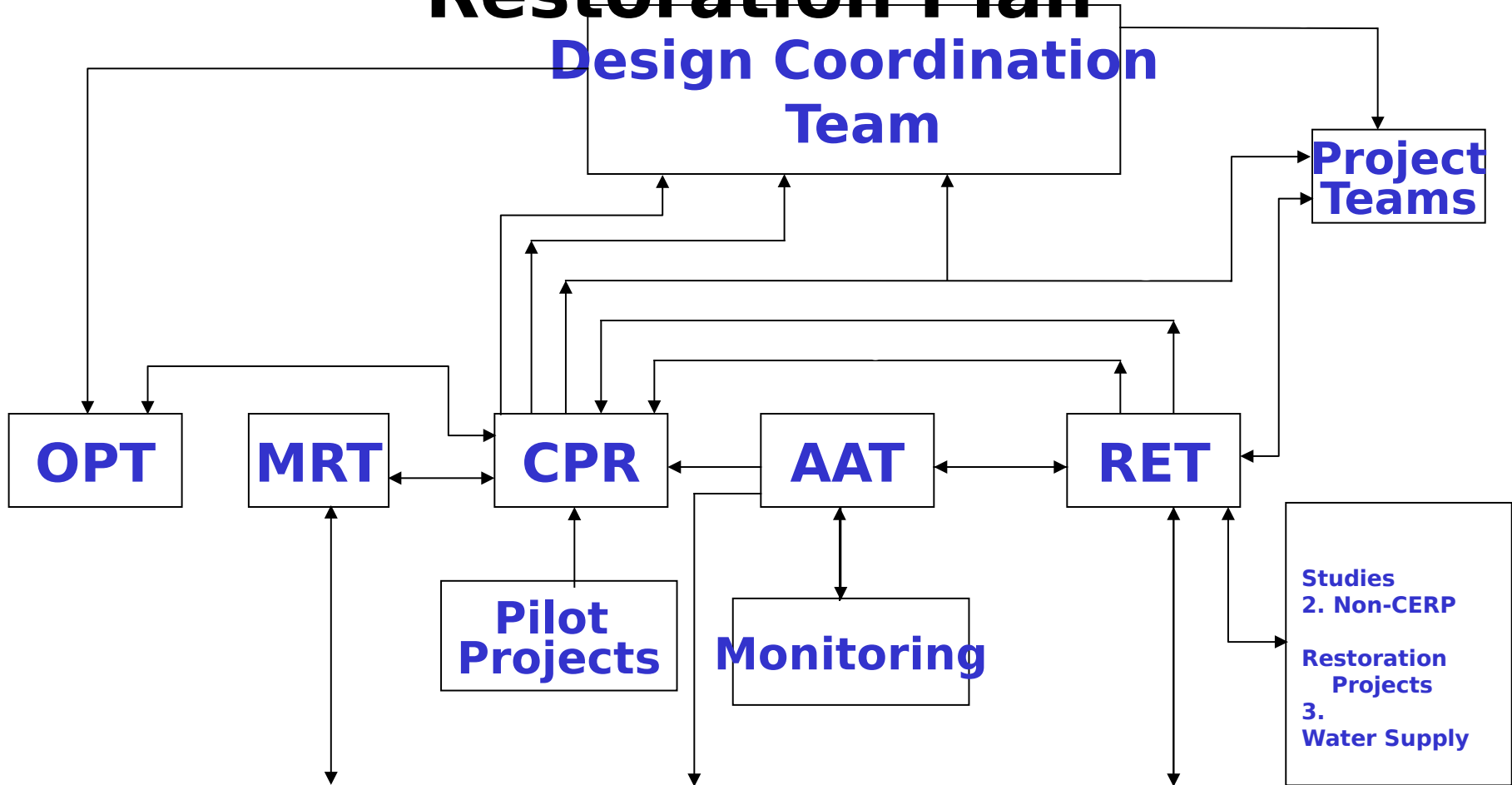
**Comprehensive
Plan
Refinement
Team**

**Model
Development
and
Refinement
Team**

**Operations
Planning
Team**

**Water
Quality
Team**

The Role of RECOVER in the Refinement of the Comprehensive Everglades Restoration Plan



Evaluation vs. Assessment

- Evaluation - Process where performance of plans relative to desired objectives is forecast through predictive modeling
- Assessment - Analysis of actual performance measured and interpreted based on information obtained from system-wide monitoring

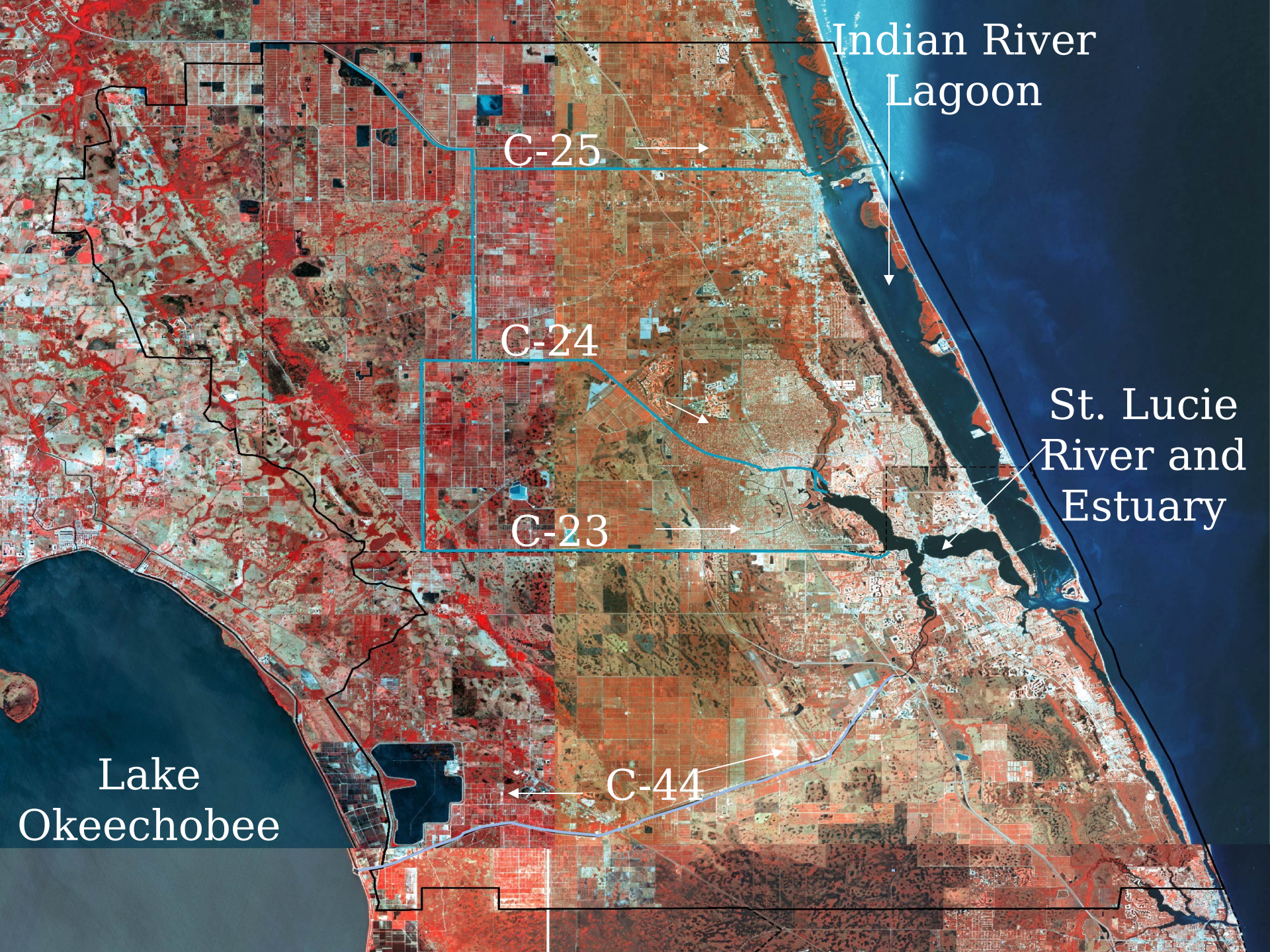
**“Perhaps even in this
last hour, in a new
relation
of usefulness and
beauty,
the vast, magnificent,
subtle
and unique region of
the
Everglades may not be
utterly lost.”**

Marjory Stoneman Douglas



Why is this project needed?

Problems in the IRL
South Study Area



Indian River
Lagoon

C-25

C-24

C-23

C-44

St. Lucie
River and
Estuary

Lake
Okeechobee



Too Much Water



... resulting in Algal blooms, ooze formation, degraded or lost habitat, etc.

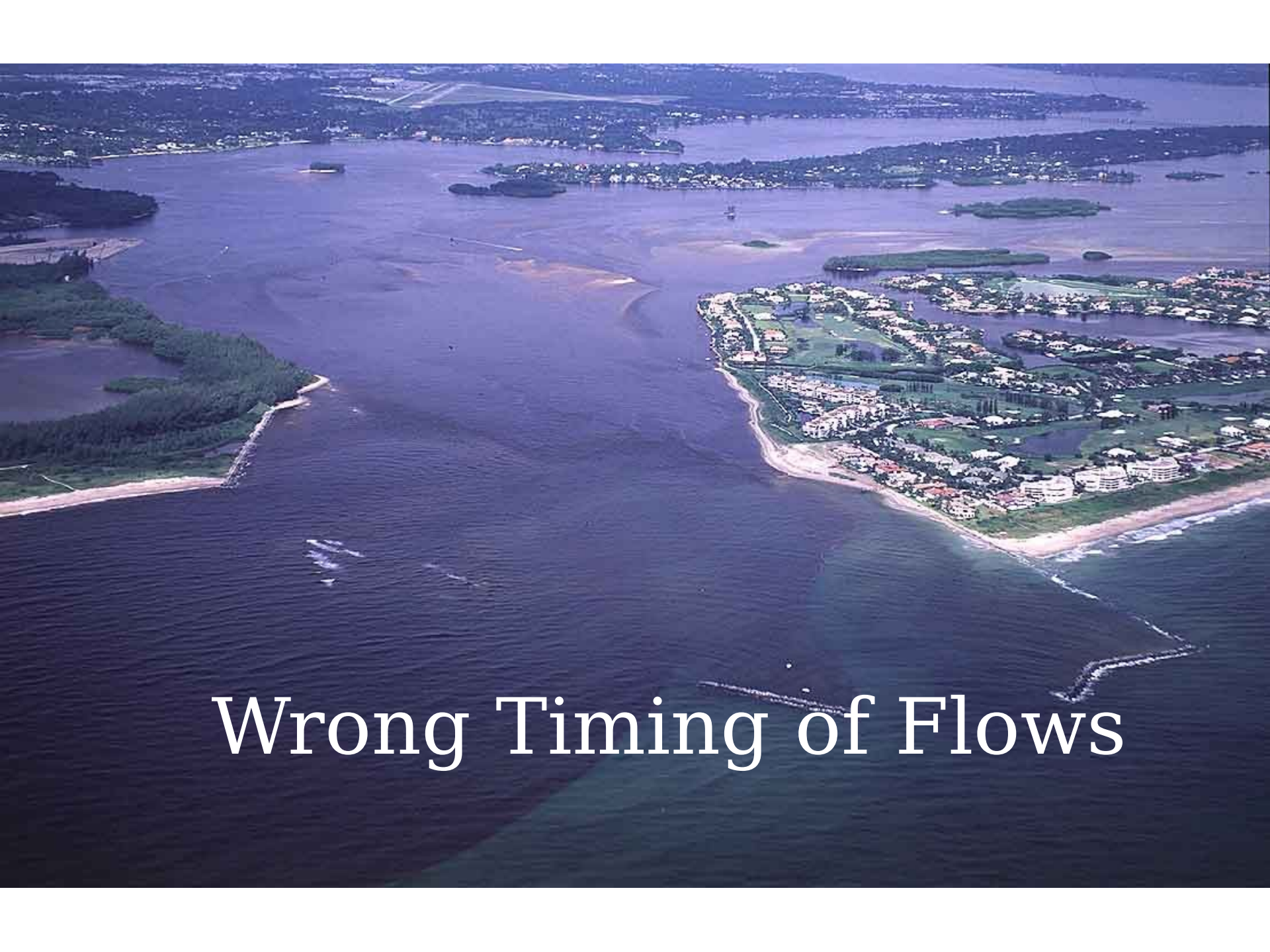


MUCK

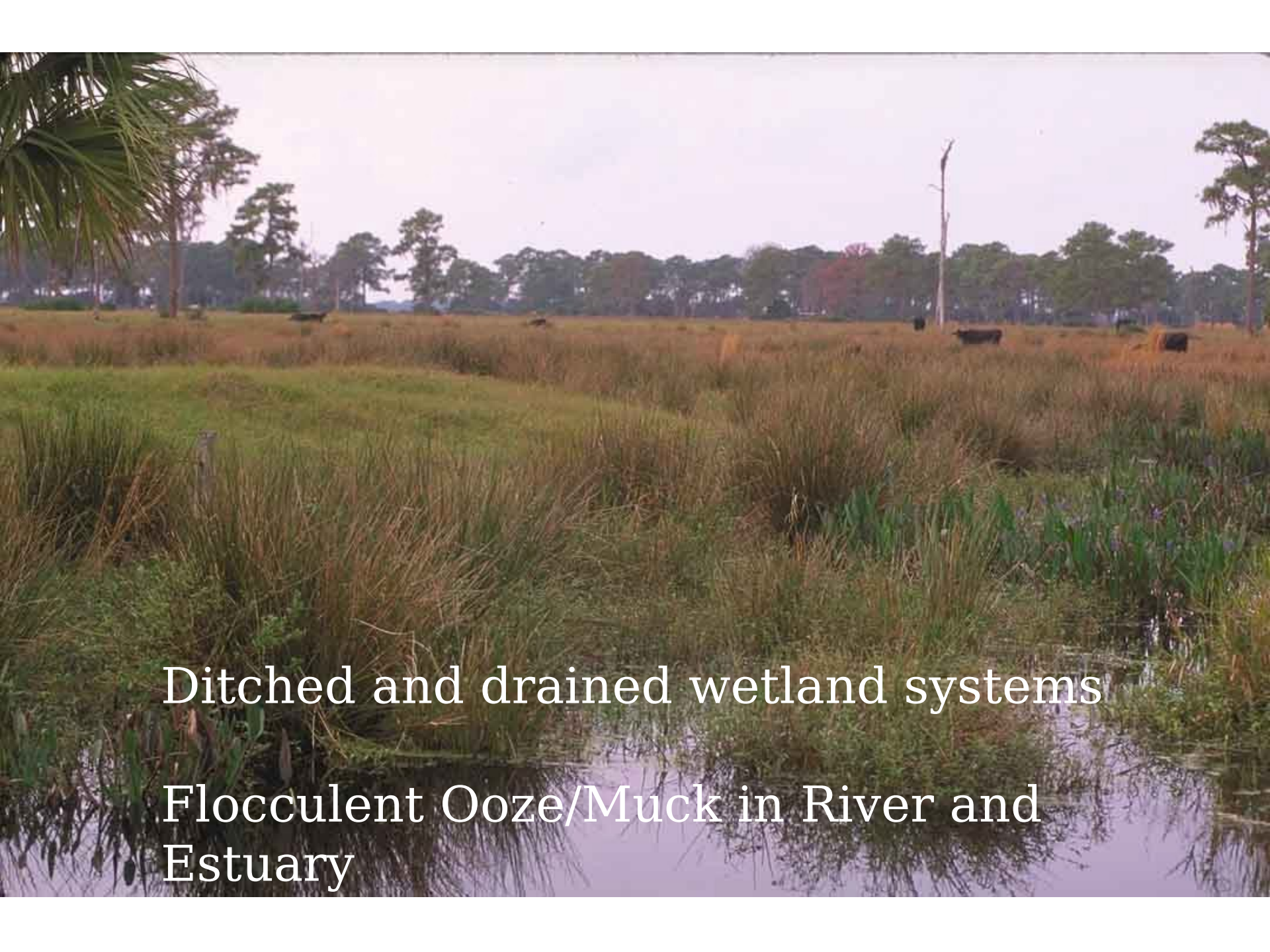


A photograph showing a dry, dusty path or road on the left, with a small puddle of water. To the right is a concrete bridge with a metal guardrail. In the foreground, a wooden walkway made of planks is supported by a metal structure, including a corrugated metal pipe and a metal box. The background shows a clear blue sky, some trees, and distant buildings.

Too Little Water

An aerial photograph of a coastal region. In the foreground, a large body of dark blue water occupies the lower half. To the right, a sandy beach curves along the shore, bordering a residential area with numerous houses and a prominent green golf course. Further inland, there are more houses and a small airport with a runway. The background shows more water and distant landmasses. The overall scene suggests a coastal community with significant water access.

Wrong Timing of Flows



Ditched and drained wetland systems

Flocculent Ooze/Muck in River and Estuary

Indian River Lagoon - South Feasibility Study Shares Goals with CERP

Enhance Ecological Values

- Improve habitat quality in estuarine ecosystems
- Improve functional quality of wetlands ecosystems
- Improve water quality

Enhance Economic values and well being

- Maintain existing level of flood control
- Maintain or improve water supply for urban and agricultural use
- Maintain a healthy ecosystem which supports recreation, and an appropriate abundance of recreational and commercial fisheries

*Billion Dollars is a lot of money
What does it get us?*

IRL South Project Cost
(October 2001 Price Level)

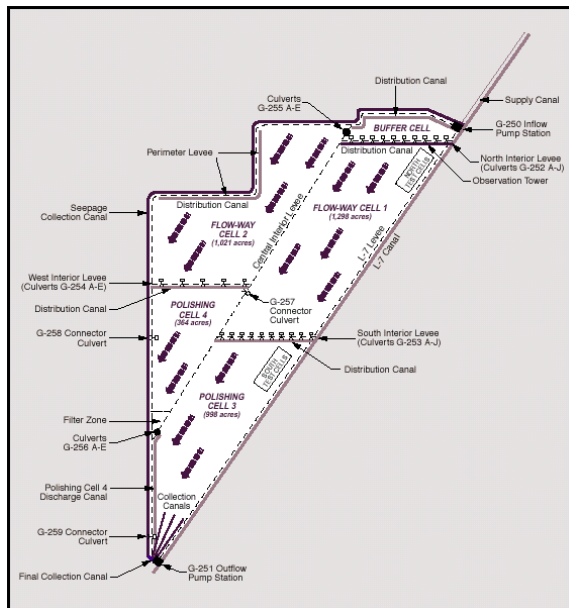
\$ 995,935,000

- Recommended Plan

- Structural Features - water attenuation, water quality treatment, water supply
- Low Tech Water Quality and Storage Features *
- Increased * Spatial Extent of Upland/Wetland Mosaic *
- Habitat for focal species
- Muck Remediation & Artificial Habitat

What is new?

STORMWATER TREATMENT AREAS (STA's)



**5 Stormwater Treatment Area
9,939 acres**

Reduces Phosphorus (18%)

Reduces Nitrogen (8%)

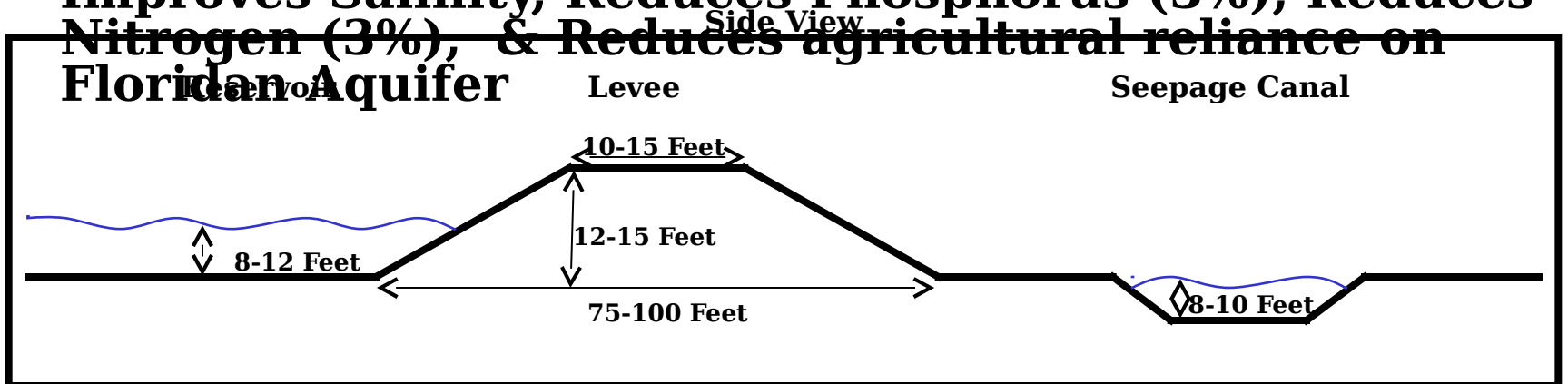
**STA sited on Agricultural land.
Associated with Reservoirs &
diversion**

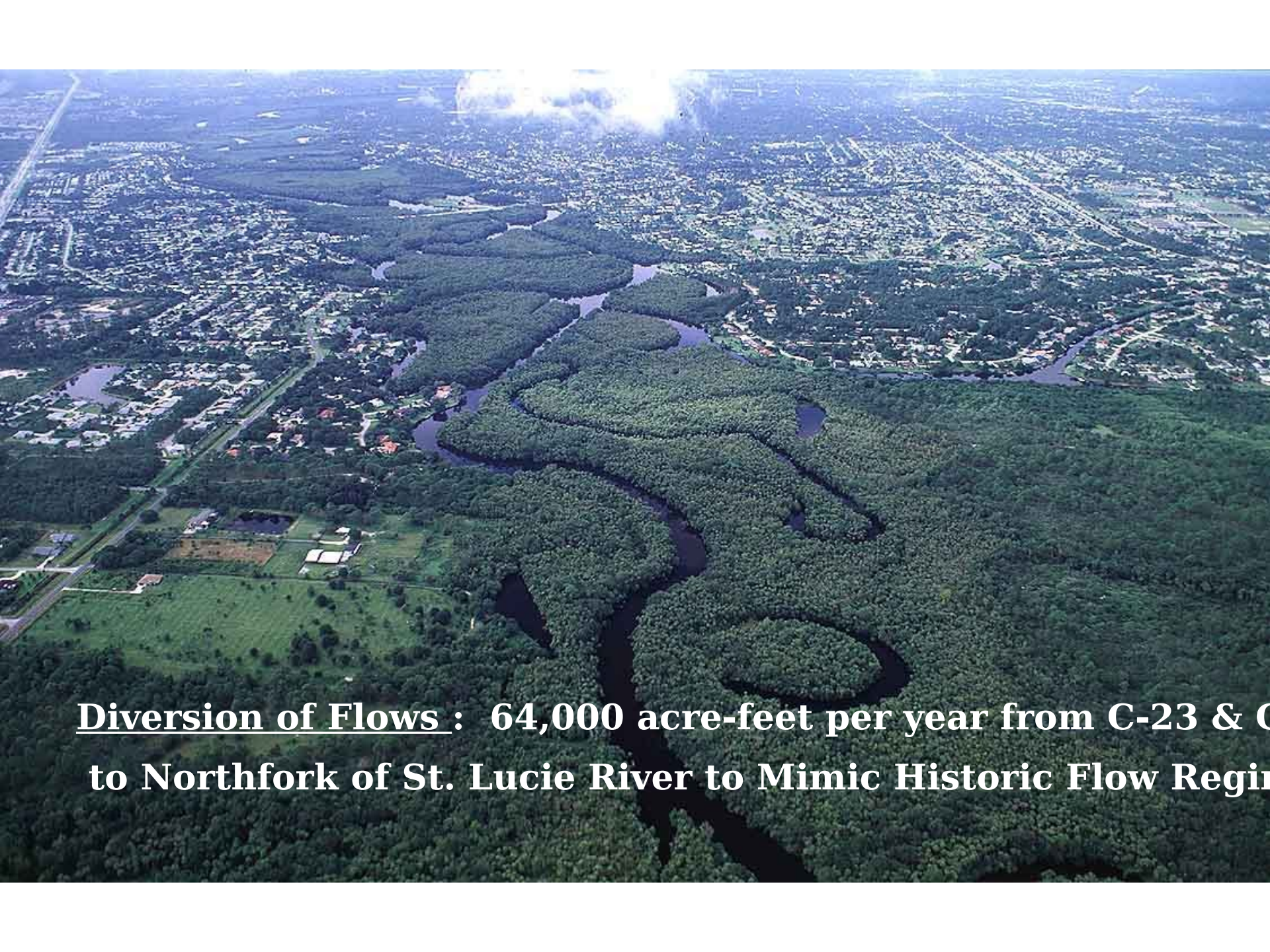
RESERVOIRS



4 Reservoirs sited on Agricultural land
Above Ground Storage: 127,150 Acre-feet, 13,196 acres

Improves Salinity, Reduces Phosphorus (3%), Reduces Nitrogen (3%), & Reduces agricultural reliance on Florida Aquifer





Diversion of Flows : 64,000 acre-feet per year from C-23 & C-24 to Northfork of St. Lucie River to Mimic Historic Flow Regime

CANALS



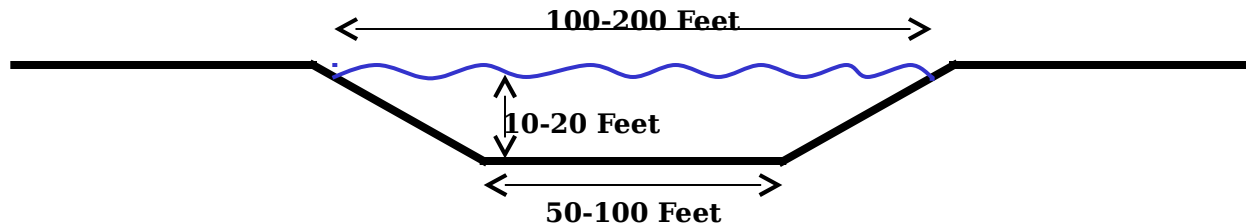
CANALS

Diversion of Flows : 41,000 acre-feet per year

From C-23 Canal to the C-44 Canal

**To reduce impacts to St. Lucie River Estuary at C-23
discharge point**

Side View





Restoration of Historic Native Upland/Wetland Habitat



Natural Storage & Water
Quality Treatment Areas

92,919 acres

Sited on impacted pasture
land.

~30,000 acre-feet storage

Reduces Phosphorus Load
(6%),

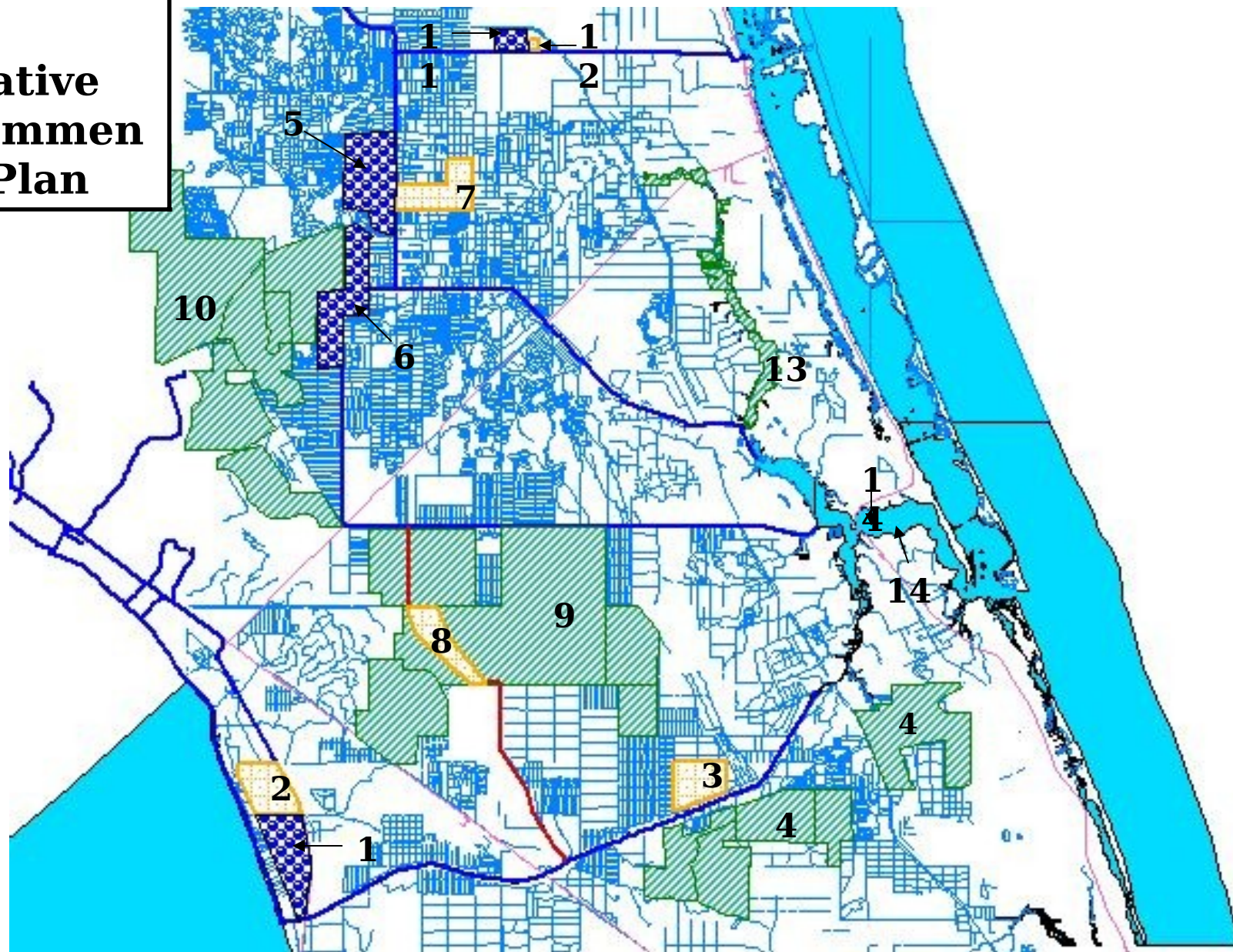
Reduces Nitrogen Load (4%)

Restores ~29,500 acres
wetlands

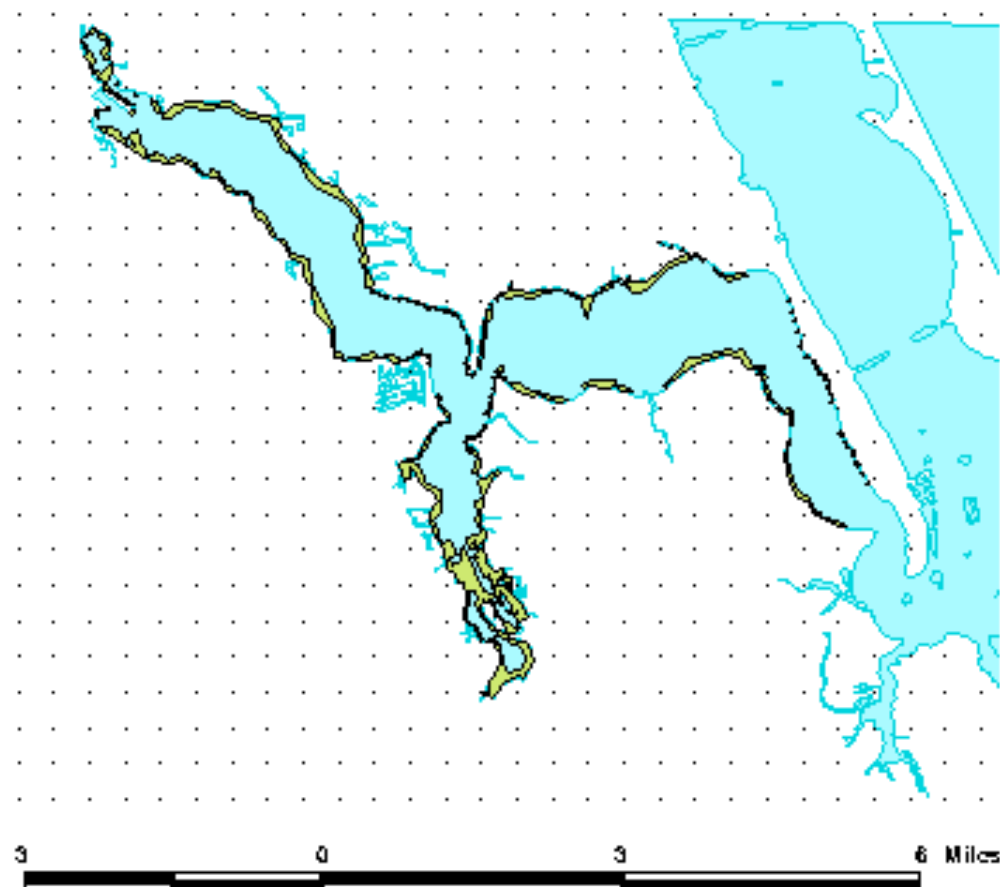
Enhances ~24,200 acres of
wetlands

IRL

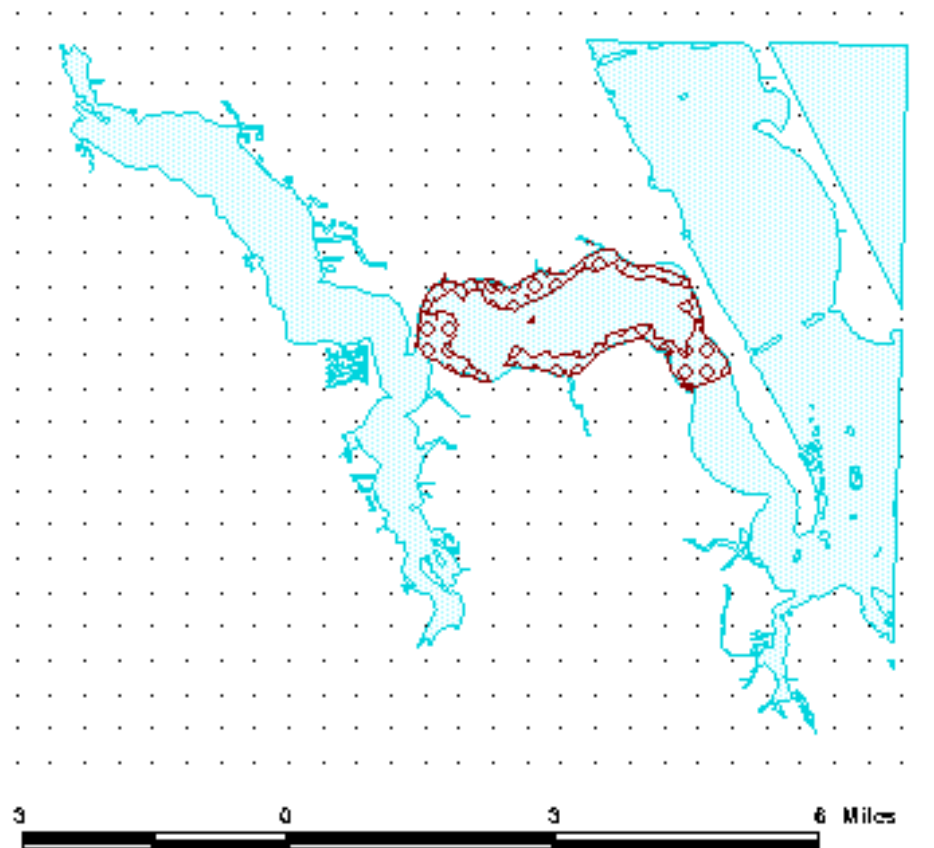
**Tentative
Recommended
Plan**



Ruppia



Oysters



Lessons Learned

the right people at the table

- local, state & federal

- Agreeing on goals, targets & performance measures**
- Environmentally sensitive County government & urban service boundary**
- Common motivation to do good**
- Everyone got their say & they said**
- Outreach to Stakeholders & Public & local government**
- Hard Work & Communication**

Visit our
web site

www.evergladesplan.org

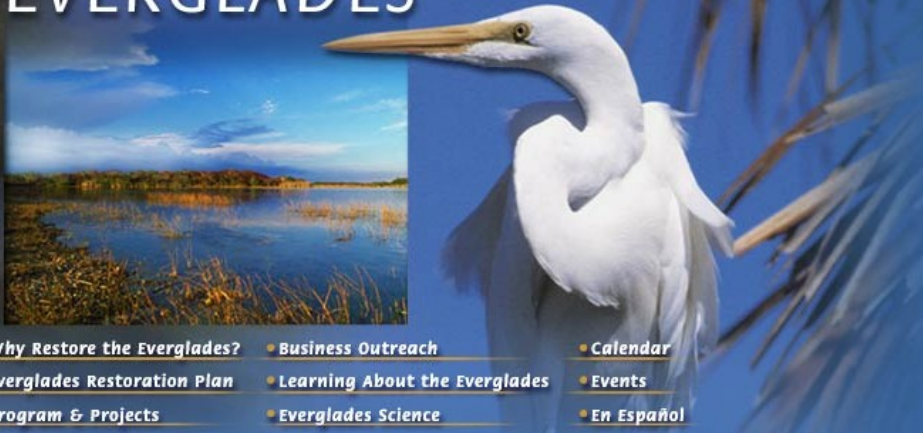
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- Calendar
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- Events
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Legislation | So You Want to Know... | Photo Gallery | Maps & Data | Publications
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Highlights

-  **CERP PERSPECTIVES NEWSLETTER**
[read the Fall 2001 issue](#)
-  **SO YOU WANT TO KNOW MORE ABOUT...**
Find out more interesting aspects about the Everglades restoration.
[Click Here](#)
- PROGRAMMATIC REGULATIONS...**

News & Headlines

- Water Preserve Areas [Draft Feasibility Report and Supplemental Environmental Impact Statement](#), available
- Indian River Lagoon - South [Draft Feasibility Report and Supplemental Environmental Impact Statement](#), available.
- Water Resources Development Act of 2000 provides approval of the Comprehensive Everglades Restoration Plan (CERP) [Click Here](#).
- Management Plans current [Program and Project Management Plans](#)

"There are no other Everglades in the world."

Marjory Stoneman Douglas
The Everglades: River of Grass

Internet



***Thank
You***



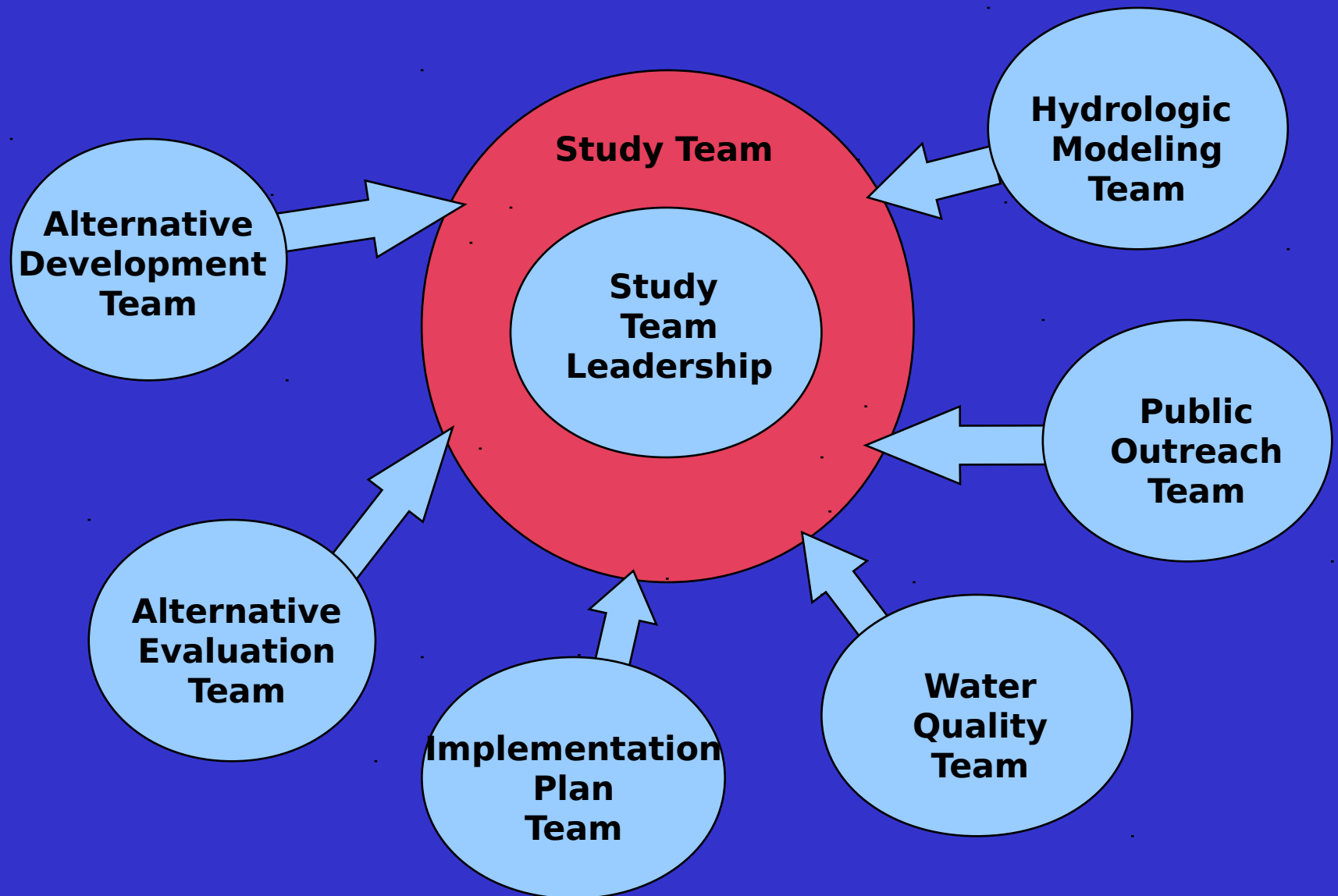
A red baseball cap with a flat brim and a mesh back. The word "Agency" is printed in white cursive script on the front. The cap is set against a dark, out-of-focus background.

Agency

"THEY'RE THE PROBLEM"



Restudy Team Structure

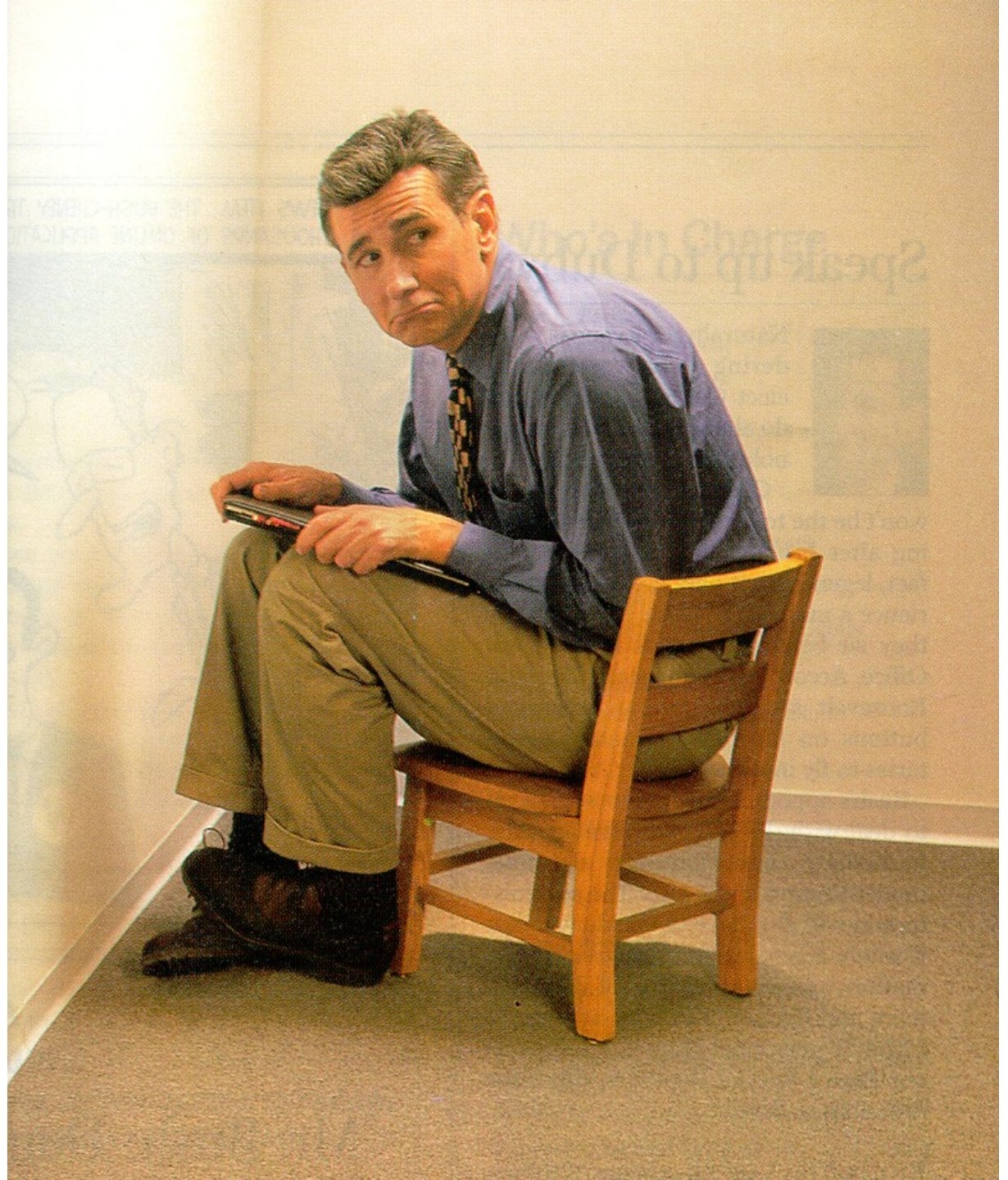


QUOTE

**“Looking up at the
guillotine sharpens
the imagination”**

**- Norman
Augustine**

**How do
you build
an
interagen
cy team?**



Building an Interagency Team

- Encourage co-location of personnel
- Emphasize open communication
- Conduct teambuilding activities
- Focus on common goals
- Involve the team in decision-making
- Have some fun!

Let's Get Rid of Management!

**People don't want to be managed -
they want to be led.**

Stop managing and start leading.

PUBLIC MEETING



Public Involvement and Outreach



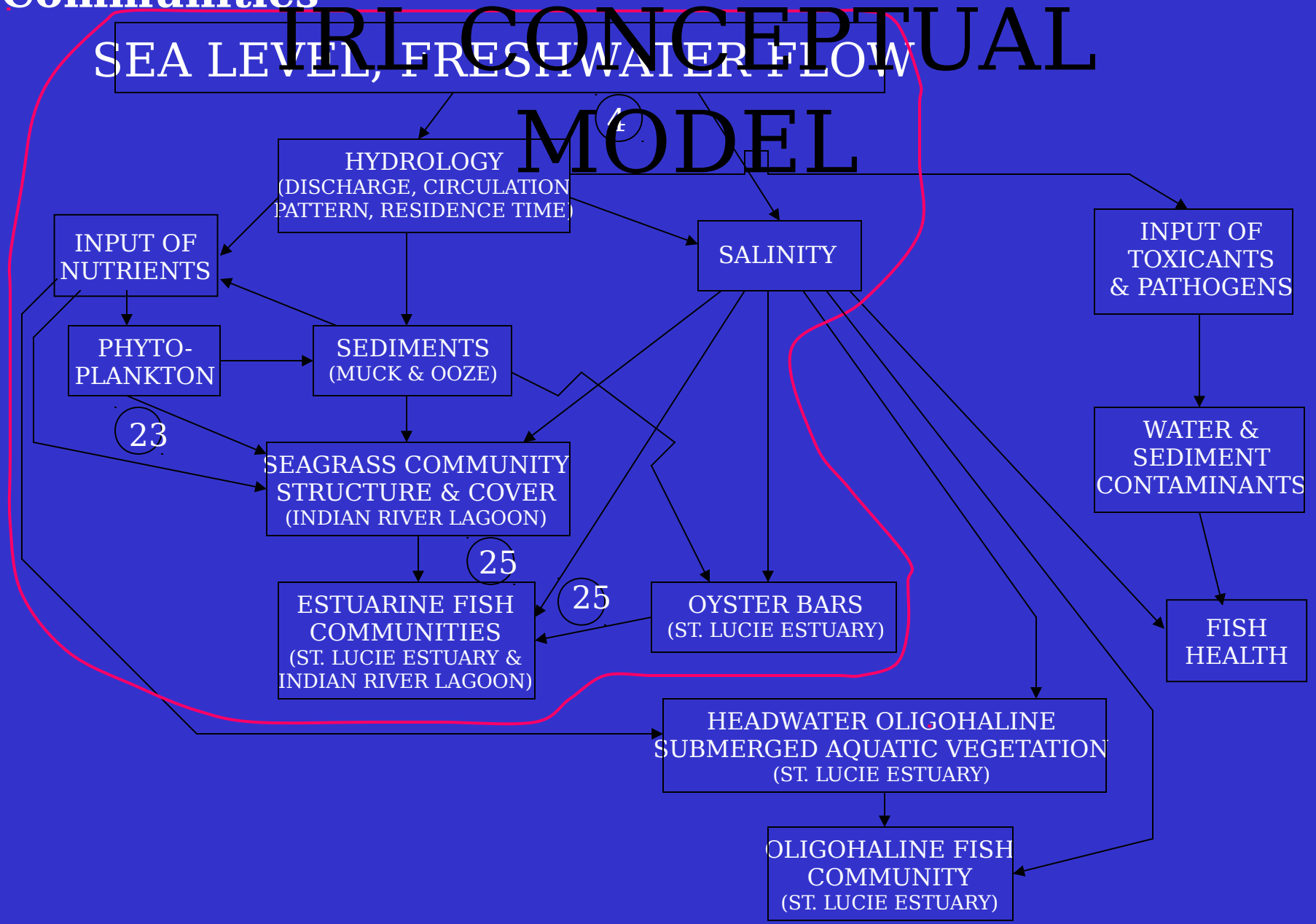
Public / Stakeholder Involvement



IRL/SLE Conceptual Model

- The IRL/SLE conceptual model focuses on the waterbody, but does not address impacts to the watershed.
- The model shows the major hydrological stressors in the system, and how these stressors link, ecologically, with a set of attributes, which can be used to characterize the ecological health of the estuary
- The hydrological stressors identified by the model include both the water quantity and water quality impacts, which have been the major sources of ecological damage to the SLE and SIRL

CERP AAT: St. Lucie Estuary and IRL Epibenthic Communities



Natural Storage and Water Quality Areas

Evaluation of Alternatives

Natural Storage Area Restoration (Total)	Alt. 1 11,532 acres	Alt. 2 11,532 acres	Alt. 3 86,772 acres	Alt. 4 106,838 acres	Alt. 5 87,887 acres	Selected Plan 87,887 acres
Wetland Enhancement	0	0	24,200 acres	29,473 acres	24,192 acres	24,192 acres
Wetland Creation	0	0	15,414 acres	25,354 acres	29,473 acres	29,473 acres
Focal Species Habitat	11,532 acres	11,532 acres	86,773 acres	106,838 acres	87,887 acres	87,887 acres
Effective Reservoir Storage of Natural Area	3,200 ac-ft	3,200 ac-ft	27,800 ac-ft	35,000 ac-ft	28,700 ac-ft	28,700 ac-ft
Reduction in Phosphorous Load caused by Natural Area Restoration	102 kg-TP/y	102 kg-TP/y	20,778 kg-TP/y	21,218 kg-TP/y	19,082 kg-TP/y	19,082 kg-TP/y

Restoration Benefits



- Increased spatial extent of wetlands
- Restore and enhance existing impacted wetlands
- Restore mosaic of wetland/pineland natural areas
- Increase population density and diversity of fish and wildlife
- Attenuate Stormwater run-off by restoring natural wetland hydroperiods
- Reduce pollutant loads to the St. Lucie Estuary (SLE) and Indian River Lagoon (IRL)
- Reduce water use

Indian River Lagoon - South Feasibility Study

Targets/Guidelines were established

- Estuary - attenuate 150,000 acre feet freshwater/year
- Water Quality - reduce Phosphorus & Nitrogen Load to estuaries
- Watershed - restore/enhance 20% of historic short hydroperiod wetland systems
- Water Supply/Flood Control - no harm, enhance where possible
- Siting - minimize impacts to existing natural systems